

remote enough from the pulse of France all round it. The author, aided by well-chosen views, shows us how the volcanic masses have controlled the higher features of the landscapes, and how the Loire stream-system has cut through the lava-flows, while, on the side of the Allier, lavas of the same age have descended into a pre-existing waterway (p. 326). Full justice is done to the phonolitic mass of the Mézenc, explored by Faujas de Saint-Fond in the middle of the eighteenth century (p. 294). We miss the name of this great investigator from the bibliography on p. 14, although Scrope's work in 1827 is mentioned. The users of this guide will become such good geologists that they will surely like to turn the pages of Saint-Fond's admirable folio. It may be hoped that M. Boule will send many lovers of unspoiled country to the strange and broken slopes of the Cévennes. "J'ai composé ce guide," he writes, "avec un rare plaisir." He has transferred this pleasure to the reader.

G. A. J. C.

The Pronunciation of English by Foreigners: a Course of Lectures to the Students of Norham Hall on the Physiology of Speech. By Dr. Geo. J. Burch, F.R.S. Pp. x+110. (Oxford: Alden and Co., Ltd.; London: Simpkin, Marshall and Co., Ltd., 1911.) Price 3s. net.

THIS is a delightful book. Works on phonetics are usually dry and uninteresting except to those who are willing to face the technical difficulties of the subject. But Dr. Burch, who is well known in other departments of science, invests the discussion with both wit and humour, while, here and there, he gives an amusing anecdote which is always appropriate and telling. He deals with the difficulties experienced by foreigners in catching the correct pronunciation of some of the sounds of the English language. The book is founded on lectures delivered at Norham Hall, Oxford, to foreign women students, and during the past ten years or so Dr. Burch has kept records of the chief difficulties in the pronunciation of 1305 persons of many different nationalities. He gives an excellent, although a short, account of the general mechanism of speech, and minutely describes the movements necessary for the articulation of the speech sounds of consonants, diphthongs, and vowels. There are also excellent remarks on the breathing apparatus.

It would seem that individuals of different nationalities have different methods of using their nervous and muscular mechanisms for articulate speech, so that if one wishes to reproduce the sound in any given language, one must learn how to train the articulating mechanism so as to obtain the required result. Dr. Burch gives minute directions, and it would seem that his system of teaching the correct tones of English to foreigners has had conspicuous success.

"During these ten years I have been greatly struck by the excellent pronunciation of the majority of those attending these courses. If I could speak those languages with which I am familiar with as good an accent as mine is spoken by them, I should have every reason to be proud. But this excellence has made a severer critic of me." (P. 59.)

Excellent, however, as the description of the movements of the tongue and other organs may be to guide the student in reproducing a given sound, an appeal to the ear is all-important, and those are fortunate who have had the instruction communicated by Dr. Burch's own living voice. We feel sure that if anyone takes up this little book he will not find it dry and wearisome, as its title might indicate. It is full of interesting information supplied by one who is an experienced and versatile teacher.

JOHN G. MCKENDRICK.

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Praxis der Linsenoptik in einfachen Versuchen zur Erläuterung und Prüfung optischer Instrumente. By Dr. W. Volkmann. Pp. vii+176. (Berlin: Gebrüder Borntraeger, 1910.) Price 3.50 marks.

THIS little book is one of a series composing a "Bibliothek für naturwissenschaftliche Praxis," in which the object of each volume is to provide an introduction to some branch of practical science by means of simple experiments which can be carried out with inexpensive and easily constructed apparatus. The optical equipment here described consists of some half-dozen lenses of different focal lengths, a number of simple wooden stands, some clips and lens-carriers, diaphragms, and screen, with a spirit lamp and strip of gas-mantle to serve as light source. Even with these simple means it is, of course, easy to arrange an interesting and instructive series of experiments to illustrate the properties of lenses and the formation and defects of optical images. With a pinhole and some fine gauze, one can go further, and study effects due to the fact that light is a wave motion. With but little increased expenditure the range of such experiments could readily be extended; but the apparatus described is sufficient to enable practical acquaintance to be made with nearly all the main defects of optical instruments: spherical aberration, astigmatism, coma, distortion, and chromatic aberration can all be examined, and even the theory of resolving power can be studied. The book concludes with chapters on the photographic lens, the magnifying glass, the microscope, and the telescope, in which application is made of the experimental knowledge acquired to the examination of the characteristics of a well-designed optical instrument.

To follow out the course of experiments here suggested would no doubt be for an intelligent lad an excellent introduction to the study of optics, and, though the book is not designed for school use, the German schoolmaster might find in it useful hints in experimental science teaching. For the English reader, however, it has no special interest; it shows no exceptional ingenuity in the devising of experiments, and, from its aim, novelty is not to be expected, nor, perhaps, desired.

Rhododendrons and Azaleas. By Wm. Watson. Pp. xi+116. "Present-day Gardening" Series, edited by R. Hooper Pearson. (London and Edinburgh: T. C. and E. C. Jack, n.d.) Price 1s. 6d. net.

THERE are certain prevailing ideas with regard to the constitution and requirements of rhododendrons which are only partially correct that have tended to restrict their cultivation. Thus the necessity for peat in the soil is an exploded assumption, although the presence of lime must be recognised as an effectual bar to success. Then again the tenderness of many attractive species is only too obvious, but it is fortunately possible to obtain hybrids of a more hardy character. Further, it may be mentioned that no good popular book on rhododendrons is extant; therefore the present work is eminently desirable, and the publishers are fortunate in securing the services of an author who is an ardent enthusiast, and is also thoroughly conversant with the different classes of rhododendrons and their special features. The classification in itself is tolerably complex. Botanists recognise a single genus which includes the true evergreen rhododendrons, a small group of Indian azaleas, also evergreen—comprising *R. indicum* and its allies—and deciduous azaleas or swamp honeysuckles of North America. The true rhododendron species are best developed in China, while Himalayan species, owing their prominence to Sir Joseph Hooker, are a favourite but tender group, and the North American

contingent are valuable on account of their more hardy nature. The explanation of the various hybrids is difficult, and calls for the special knowledge possessed by the author. Famous collections, cultural directions, and a list of species make up the contents of a volume which every gardener—save perhaps the dweller on limestone—should purchase and study.

The Practical Flower Garden. By Helena R. Ely. Pp. xiii+304. (New York: The Macmillan Co., London; Macmillan and Co., Ltd., 1911.) Price 8s. 6d. net.

IF the descriptions of experience and garden stock presented by Mrs. H. R. Ely may be accepted as a trustworthy exposition of garden practice in the eastern States of North America, we are justified in assuming that there is very little difference between the methods pursued and the plants cultivated on the two sides of the Atlantic. We had anticipated that there would be at any rate very marked differences in the trees and shrubs; also that certain herbaceous plants would be better suited to the more extreme conditions prevailing in the States, whereas with few exceptions, such as *Boltonia* and *Baptisia*, all the border perennials mentioned in the author's lists are offered in any British horticulturist's catalogue; of the climbers or vines, *Dolichos japonicus* and *Vitis labrusca* are rarely grown in English gardens.

The reader who is searching for useful hints is likely to be rewarded by a perusal of the advice regarding fertilisers and plant remedies, although the pronounced commendation of a fertiliser of unknown composition passing under the name of *Bon Arbor* is tantalising if not savouring of quackery. It should also be noted that the author, like every good horticulturist, has a favourite specific, which in her case is bone-meal, especially for *Delphiniums*. Advice is offered on the subjects of colour-schemes and the making of lawns, but a more original note is struck in the account of a garden prepared for the growth—not cultivation—of indigenous plants. It may be conjectured that Mrs. Ely does not claim to be a botanist, as certain inexactitudes are apparent, although the only flagrant mistake is in the misuse of the term "annual."

A Short History of Ethics: Greek and Modern. By R. A. P. Rogers. Pp. xxii+303. (London: Macmillan and Co., Ltd., 1911.) Price 3s. 6d. net.

A USEFUL historical survey, chiefly descriptive but partly critical. The author's primary object is to give a short and accurate description of the leading Greek ethical systems and of those systems which represent the best type of modern philosophic ethics, from Hobbes to the end of the nineteenth century; secondarily, to show, by criticism and comparison, the connecting links between systems and the movements of thought by which new systems arise. Some familiar names are omitted, where the type of thought has already been illustrated by other thinkers; e.g. Reid is represented by Butler, and the French empiricists by Hume. Such recent systems as those of Wundt, Paulsen, Nietzsche, and the pragmatists are also omitted. The systems most lengthily considered are those of Plato, Aristotle, Epicurus, the Stoics, Hobbes, Butler, Hume, Kant, the German idealists culminating in Hegel, and the English utilitarians through Bentham, Mill, Spencer, and Sidgwick to T. H. Green, whose doctrine specially commands the author's admiration.

The book is well written, in commendably judicial tone throughout. It makes a modest claim—calling itself short and elementary—but those students who thoroughly master it will have obtained an excellent and more than elementary introduction to the subject.

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LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

The Forest of Auchnacarry.

THE letter in NATURE of June 1 would come as a shock to foresters throughout the world. It states that the Scotch pines at Auchnacarry are perhaps the largest and finest fragment that is left to us of the primeval Caledonian forest. In area about 1500 acres, the forest contains trees 200 to 300 years old of huge size, up to 6 feet in diameter. The scenery of the forest is of great beauty, and, save for a few isolated clumps, is all that we know to remain of the great forest of Scotch pine that once spread over all suitable ground in central Scotland. The writer also remarks that nothing is left so noble, so extensive, so worthy of preservation as this doomed forest of Lochiel's at Auchnacarry.

The photograph is striking. It is difficult to believe that forest such as this was once in the place of desolate and dreary bogland such as the Moor of Rannoch. But it was no farther back than Napoleon's time that the great forest of Rannoch was cut down and turned into the dreary waste of to-day!

Surely there is here a strong case—the strongest possible case—for the Development Commissioners! We read that they have 500,000l. yearly for five years, and this year an extra vote of 400,000l. in addition; and that a portion of their funds is to be devoted to forestry "by the purchase and planting of land."

The distant view is sometimes the clearest. To the man at a distance it is as clear as daylight that, whatever may be done for minor objects, this forest of Auchnacarry, this unique national monument, should be acquired for the country at any cost.

Italy has done much since it became a nation, but it has, perhaps unavoidably, neglected much. The most patriotic Italian will at once admit that Italy has neglected its forestry. Japan does more forestry in a week than Italy in many years! Yet Italy has nationalised the remains of its Apennine forests at Camaldole and Vallombrosa. Here are giant silver-firs not to be surpassed by any on this globe. And these most beautiful forests remain as national monuments ever pointing the way towards national regeneration, the restoration of the dreary and ruined Apennines to the beauty, the fertility, and the value of past days.

Spain is preserving the remnants of its ancient forests; Portugal is guarding them jealously. Is British forestry to sink to the level of Chinese? Surely, cost what it may, this remnant of the primeval Caledonian forest should be nationalised and preserved.

There is one important point to remember. The Italians, the Spaniards, and the Portuguese can replant and restore their national forests whenever they are strong enough as nations to do it. But these northern forests in Scotland and Sweden, near the limits of tree growth, can be restored only with extreme difficulty, if at all, when once they are destroyed. They seem to be the product of conditions that have passed away, or perhaps of geological time. Witness the Moor of Rannoch and many forests in northern Sweden. When once they have passed into bog and the great draining action of the trees has been removed, their restoration to forests seems nearly impossible at any practical expenditure. With forest near its climatic limits, this is the case in other lands and other climes.

D. E. HUTCHINS.

(Late Chief Cons. Forests B.E. Africa.)

Kenilworth, near Cape Town, July 20.

The Drought and the Birds.

As a rule, water has been left in my garden for the wild birds, and they have taken full advantage of the opportunity for bathing and drinking.

On Monday, however, a hen blackbird rather surprised me. The hose was working in a shady spot. Her ladyship